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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

REIFSNYDER, DAVID A

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 05/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,190

Applicant(s)

COLLIER, KEVIN E.

Examiner

David A Reifsnyder

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35 and 38-43 is/are allowed.
- 6) ☒ Claim(s) 1-34, 36, 37 and 44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

The reference by Tim Cornitius entitled "Advances in Water Treating Solving Production Problems, Offshore, March 1988, pp. 27-29" listed on the Information Disclosure Statement filed on June 25, 2002 has not been considered because a copy of that reference has not been supplied, nor is a copy of that reference in Parent Application Number 09/441,598.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-34, 36, 37 and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1; the recitation in claim 1 of "the conduit extending from the heavy component toward the rotational axis and out of the vessel" is vague and indefinite for two reasons. One reason is because "the heavy component" is a material not a location. Even the location defined by "the heavy component" is not a definitive location. That location depends on various factors such as the relative amounts of the heavy component to the light component, the speed of rotation of the centrifuge, etc. The easiest way to correct this problem would be to claim the location wher the

conduit extends from in relationship with the instantly claimed peripheral wall.

Another problem with the recitation of “the conduit extending from the heavy component toward the rotational axis and out of the vessel” is that the recitation implies that the conduit stops somewhere near or on the rotational axis; therefore, it is vague and indefinite as to how the conduit extends out of the vessel.

Regarding claim 10; the recitation of “the areas bounded by the fins” lacks antecedent basis and does not make sense since it was never claimed that the fins bound areas.

Regarding claim 15; the recitation of “the radial axis” lacks antecedent basis. Furthermore, it is vague and indefinite as to what axis is a radial axis. The easiest way to correct this 35 USC 112, 2nd paragraph problem with claim 15 is to change; “the radial axis” to ---the **rotational** axis---.

Regarding claim 16; it is vague and indefinite as to how the heavy component is removed from the vessel. This is because claim 15 claims that the heavy component is removed through a plurality of extraction tubes; however, claim 15 fails to claim that each of the extraction tubes are in a location that would allow the heavy component to be removed from the vessel. (i.e. claim 15 claims that each extraction tube extends from toward the rotational axis to toward a peripheral wall)

Regarding claim 24; the recitation of “causes at least a portion of particulate matter settled against the peripheral wall to resuspend within the fluid” is vague and indefinite as to where that particulate matter came from. (i.e. as it is claimed now, the particulate matter is a different particulate mater from the original particulate matter;

therefore, the recitation of "to resuspend within the fluid" does not make sense) If the particulate matter is the same as the original particulate matter, as the specification implies, the easiest way to correct the 35 USC 112, 2nd paragraph problem with claim 24 is to change; "causes at least a portion of particulate matter settled against the peripheral wall to resuspend within the fluid" to ---causes at least a portion of the particulate matter settled against the peripheral wall to resuspend within the fluid---.

Regarding claim 36; since claim 36 fails to claim that the extractions tubes are in a location that would allow the removal fluid to be delivered through them, it is vague and indefinite as to how the removal fluid is delivered to the extraction tubes. (i.e. claim 36 claims that the extraction tubes extend from toward the rotational axis to toward a peripheral wall) Of course, the extraction tubes could be in fluid communication with a source of removal fluid.

Regarding claim 37; since claim 37 fails to claim that the extraction tubes are in a location that would allow the fluid having the resuspended particulate matter to be removed from the vessel, it is vague and indefinite as to how the fluid having the resuspended particulate matter is removed from the vessel though the extraction tubes. (i.e. claim 37 claims that the extraction tubes extend from toward the rotational axis to toward a peripheral wall)

Double Patenting

Applicant is advised that once the 35 USC 112 2nd paragraph problem with claim 24 is corrected claims 24-34 will be found allowable and claim 44 will be objected to under 37 CFR 1.75 as being a substantial duplicate of claim 34. When two claims in an

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application are duplicates, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Budzich.

Regarding claims 1-5 and 9-12; Budzich discloses a method for accomplishing separation of a multiple-component fluid mixture comprising:

feeding the fluid mixture into a pressurized chamber of a vessel through an inlet channel 15, the chamber being at least partially bounded by a peripheral wall and the chamber also communicating with an outlet channel 17, the fluid mixture including a heavy component (e.g. water and solids) and a light component (e.g. oil);

rotating the vessel about a rotational axis extending through the vessel such that the heavy component (e.g. water and solids) collects toward at least a portion of the peripheral wall of the vessel radially outward from the rotational axis and the light component collects toward the rotational axis (col. 3, line 53 to col. 4, line 5), a plurality of spaced apart inlet tubes/fins (45, 46) being disposed within the chamber, each inlet tube/fin projecting from toward the rotational axis to toward the peripheral wall, at least a

portion of the fluid mixture being disposed between the fins during rotation of the vessel;
(see fig.1)

removing the light component (e.g. oil) through the outlet channel 17; and
removing a portion of the heavy component (e.g. most of the water and some of the solids) through a plurality of extraction tubes/conduits 52 disposed within the chamber, the plurality of extraction tubes/conduits 52 extending from proximal the peripheral wall toward the rotation axis, each of the plurality of extraction tubes/conduits 52 fluidly communicating with a water and solids passageway 42 extending parallel to the rotational axis and out of the vessel.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Budzich.

Regarding claim 6; Budzich discloses the claimed invention except for pressurizing the fluid mixture in a range of about 75 psi to 125 psi . It is considered that it would have been obvious to one having ordinary skill in the art at the time the invention was made for the chamber be pressurized to 75 psi to 125 psi because the chamber is pressurized and 75 psi to 125 psi is a common chamber pressure. (i.e. not too low as to be meaningless and not too high as to require heavy duty construction of the container)

Allowable Subject Matter

Claim 35 and 38-43 are allowed.

Claims 7, 8, 13-34, 36 and 37 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The main reason for the allowance of claims 7 and 8 over art is that the prior art of record fails to describe the instantly claimed method as a whole and including **wherein a disc outwardly projects from toward the rotational axis to toward the peripheral wall, the disc intersecting with each of the plurality of fins.**

The main reason for the allowance of claims 13 and 14 over art is that the prior art of record fails to describe the instantly claimed method as a whole and including **wherein the fluid mixture comprises a heavy fluid component, a light fluid component and particulate matter, at least a portion of the particulate matter settling against the peripheral wall of the vessel due to rotation of the vessel, the**

method further comprising feeding a removal stream of fluid into the rotating vessel such that the removal stream initially mixes with the heavy fluid component at or adjacent the peripheral wall, the removal stream resuspending the particulate matter settled at the peripheral wall into the heavy fluid component.

The main reason for the allowance of claims 15-23 over art is that while the prior art of record (i.e. Budzich) discloses a method for accomplishing separation of a multiple-component fluid comprising: feeding the fluid mixture into a chamber of a vessel through an inlet disposed at a first end of the vessel, the fluid mixture including a heavy component and a light component, the vessel having an opposing second end with a first outlet disposed thereat and a peripheral wall extending between the first end and the opposing second end; rotating the vessel about a rotational axis extending through the vessel such that the heavy component collects toward at least a portion of the peripheral wall of the vessel radially outward from the rotational axis and the light component collects toward the rotational axis, a plurality of spaced apart fins being disposed within the chamber; removing the light component through the first outlet; and removing the heavy component through a plurality of extraction tubes, each extraction tube extending from toward the rotational axis to toward the peripheral wall; **the prior art of record (i.e. Budzich) fails to disclose or fairly suggest that the fins bound a plurality of fluid channels that extend at least partially between the inlet and the first outlet with each extraction tube being disposed within a corresponding fluid channel.**

The main reason for the allowance of claims 24-34 and 44 over art is that while the prior art of record (i.e. Nordstrom or Nilsson '940) discloses methods for separating particulate matter from a fluid in which the particulate matter is suspended, the methods comprising: feeding a fluid containing a particulate matter into a chamber of a vessel through an inlet, the chamber being at least partially bounded by a peripheral wall and the chamber also communicating with an outlet; rotating the vessel about a rotation axis extending through the vessel such that at least a portion of the particulate matter settles out of the fluid and against at least a portion of the peripheral wall of the vessel; delivering a stream of fluid into the rotating vessel; removing the settled out particulate matter through peripheral outlets on the peripheral wall; and removing through the outlet of the vessel the fluid from which the particulate matter has settled out; **the prior art of record (i.e. Nordstrom or Nilsson '940) fails to disclose or fairly suggest that the stream of fluid is delivered at or adjacent the peripheral wall causing at least a portion of the particulate matter settled against the peripheral wall to resuspend within the fluid and removing the at least a portion of the fluid having the resuspended particulate matter from the vessel through an extraction tube, the extraction tube having an opening to receive the fluid at or adjacent to the peripheral wall.**

The main reason for the allowance of claims 35-43 over art is that while the prior art of record (i.e. Nordstrom or Nilsson '940) discloses methods for separating particulate matter from a fluid in which the particulate matter is suspended, the methods comprising: feeding a fluid containing a particulate matter into a chamber of a vessel

through an inlet, the chamber being at least partially bounded by a peripheral wall and the chamber also communicating with an outlet; rotating the vessel about a rotation axis extending through the vessel such that at least a portion of the particulate matter settles out of the fluid and against at least a portion of the peripheral wall of the vessel; removing through the outlet in substantially continuous fashion the fluid from which the particulate matter has settled out; delivering a stream of fluid into the rotating vessel; removing the settled out particulate matter through peripheral outlets on the peripheral wall; and continuing the continuous removal through the outlet of the vessel, the fluid from which the particulate matter has settled out; the prior art of record (i.e. Nordstrom or Nilsson '940) fails to disclose or fairly suggest temporarily stopping the flow of fluid through the inlet and outlet of the vessel; during the period in which the flow of fluid through the inlet and outlet is stopped delivering the stream of fluid into the rotating vessel at or adjacent the peripheral wall such that delivery of the removal stream into the vessel causes at least a portion of the particulate matter settled against the peripheral wall to resuspend within the fluid; removing the at least a portion of the fluid having the resuspended particulate matter from the vessel; and once at least a portion of the fluid having the resuspended particulate matter therein is removed from the vessel, reinitiating the flow of fluid through the inlet of the vessel.

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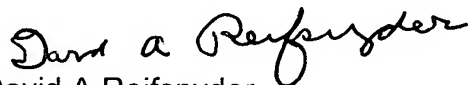
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ehnstrom who discloses a centrifugal separator and method of operating same, the centrifugal separator including a rotational axis, a peripheral wall and plurality of extraction tubes extending from the rotational axis to the peripheral wall.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Reifsnyder whose telephone number is 1-703-308-0456. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda M Walker can be reached on 1-703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 1-703-872-9310 for regular communications and 1-703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 1-703-308-3601.


David A Reifsnyder
Primary Examiner
Art Unit 1723

DAR
April 24, 2003